## Alternative I
# West Side Conveyance and River Restoration

### General

The concept of this alternative is to eliminate the major diversions from the Sacramento River below Shasta Dam, the Feather River below Lake Oroville, and from the Delta. These diversions would be consolidated and relocated to Shasta Lake and Thermalito Afterbay. The general operation of these new diversions would be to divert a small percentage of the flow above that required for the Sacramento River, the Feather River, and Bay-Delta environment. Water diverted through this system will be conveyed along the west side of the Sacramento Valley across the Delta via siphons and canals to the south Delta export facility. Large off-stream storage and/or groundwater storage will be developed along the west side of the Sacramento Valley to bank water and provide water for the agricultural and municipal diversions replaced on the Sacramento River and Delta. Stored water will also be provided for environmental uses in the Sacramento River system and the Bay-Delta. Shasta and Oroville would be re-operated in conjunction with new storage to enhance fisheries and water quality in rivers and the Bay-Delta.

On the San Joaquin River system retirement of agricultural lands that have drainage problems and are marginally producing, coupled with groundwater banking and conjunctive use will be operated to provide available water in drought years for transfers and to improve water quality in the river and in the south Delta. Acquired water developed from expanded surface or groundwater storage will be used to transport fish at critical times and to improve water quality in the south-Delta.

The overall water demands in the delta will be reduced by Urban BMP's and Agricultural EWMPs. Expanded surface storage, groundwater and conjunctive use will be used to provide for in stream San Joaquin River flow and south Delta flow pattern improvement resulting from the water saved by land fallowing and retirement.

### Operation of New Diversions

Diversions will be made to capture flows from the falling legs of high flow hydrographs on the Sacramento and Feather Rivers. Diverted flows would be conveyed via tunnels and canals along the west side of the Sacramento Valley to a large new off-stream reservoir(s).

- Diversions from the Sacramento River would be located at Shasta Lake with a maximum diversion capacity of 5,000 to 10,000 cfs.

- The diversion from the Feather River would be located at the Thermalito Afterbay with a maximum diversion capacity of 2,000 to 7,000 cfs.

- Diversions from the Red Bluff Diversion Dam will be made during extreme wet weather flood flows. A new conveyance facility from the Tehama-Colusa Canal, with a capacity of about 2,500 cfs, will connect this diversion to the west-side conveyance facility and the off-stream storage.

- The diversions would only take place when river flows exceed the flow required to protect the environment of the Sacramento and Feather Rivers and the Bay-Delta. Most diversions would only occur during heavy spills and would represent only a small percentage of the flood flow hydrograph.

- Turnouts would be placed along the conveyance system to serve irrigation districts and groundwater basins for conjunctive use.

**Operation of Off-Stream Storage and Existing Storage in the Sacramento Valley**

New off-stream storage of 6 to 8 million acre-feet will be developed on the west side of the Sacramento River along with expanded groundwater storage and conjunctive use operations. Groundwater banking and conjunctive use operations will also be expanded in the San Joaquin Valley and the Tulare Lake Basin. The new off-stream storage will be filled with high quality water diverted through operations explained above. Storage will be operated in the follow manner.

- Major urban water users will primarily be provided water from off-stream storage. Water will also be conveyed through the west side system to local storage facilities when the new off-stream storage is full. To the extent possible surface local water and/or groundwater supplies will continue to be used to meet a portion of the local demand.

- Previous agriculture diverters on the west side of the Sacramento Valley will use a combination of surface water banked in new off-stream storage and groundwater from conjunctive use operations.
  - During above average flow periods agricultural deliveries will be made primarily from water storage in off-stream storage facilities.
  - During below average flow periods conjunctive use and groundwater banking operations will provide a majority of the agricultural deliveries, leaving a greater portion of the stored water available for major urban water users.

- During above average flow periods or when off-stream storage is full water from diversions or storage will be used to recharge groundwater basins in conjunctive use and banking areas such as the Butte Basin, the Stoney Creek Fan, the San Joaquin Valley, and the Tulare Lake Basin.

- Shasta, Oroville, and Folsom reservoirs will be operated primarily to provide environmental water in the Sacramento and Feather Rivers and the Bay-Delta to enhance habitat, fisheries, and water quality and to makeup the outflow needed to meet the 1995 Salinity Control Plan. In addition to improving in river habitat, these reservoirs would be regulated to improve through delta flow conditions from March through June. These reservoirs will also be operated in conjunction with the new off-stream storage.



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## Operation of Water Developed Through Conservation

Water developed through urban best management practices (BMP's) and agricultural efficient water management practices (EWMP's) will be used for a combination of water supply and environmental benefits, depending on the basin in which the water is developed.

- Water developed through implementation of agricultural EWMP's in the San Joaquin Valley will be used primarily to provide additional flows on the San Joaquin River and in the south Delta to improve water quality and the environment.

- Retirement of marginally-productive agricultural lands that contribute substantially to in stream water quality problems in the San Joaquin River will free up water that can be held in storage, released, or transferred to improve water quality and fish transport.

- Water developed through implementation of agricultural EWMP'S in the Sacramento Valley will be used primarily to augment water supply availability.

- Water conserved through urban wastewater reclamation (100,000 to 200,000 acre-feet) will be used to offset urban demands within the regions where the water was reclaimed. Reclaimed water could be used as grey water for landscape irrigation purposes, recharging groundwater which could be used for below average flow periods, for agricultural uses, or for potable or non-potable urban use.

### Operation of Conveyance System

A new conveyance system will be constructed to convey water along the west side of the Sacramento Valley. This conveyance system will orginate at Shasta Lake and the Thermalito Afterbay and terminate at the export facilities in the south Delta with a conveyance capacity of 10,000 to 15,000 cfs. Interties to the North Bay Aqueduct, the Contra Costa Canal, the Mokelumne Aqueduct, and the South Bay Aqueduct will provide high quality water to the urban agencies.

- The new west side conveyance system will replace all major diversions from the Sacramento River, the Feather River, and the Delta. Water will be released from off-stream storage and conveyed to water users on delivery schedules similar to those historically experienced.

- When off-stream storage is full and there are further opportunities for diversion, water will be conveyed through the interties to fill the local urban reservoirs.

## Operation of Water for Fish and Wildlife Uses

Water developed for fish and wildlife purposes will be in the most efficient manner possible to enhance fish and wildlife habitats in the Sacramento and San Joaquin Valley and the Bay-Delta estuary.

- About 100,000 acre-feet of water will be purchased from willing users and used to improve water quality in the south Delta during periods of low Delta inflows from the San Joaquin River.

- Wildlife refuges would be served by interties to the new west side conveyance system. Additional water will be provided from off-stream storage.